

IMPORTANT NOTICE: A printed copy of this document may not be the version currently in effect. The current official version is available via the Sandia National Laboratories Nuclear Waste Management Online Documents web site

Effective Date 2-3-95

TITLE: DEPTH-TO-WATER MEASUREMENT USING SOLINST BRAND ELECTRIC SOUNDER

Prepared by: Vesde Sengade Date: 1-10-95
SNL Reviewer: Wayne Jensen Date: 1-10-95
SNL Approval: Ray Allen Date: 1-10-95
SNL Safety Approval: CJ McKinney Date: 1-13-95
MOC Cognizant Department Manager Concurrence: LJ Polich Date: 1-13-95
MOC Manager of Industrial Safety: Wes Hoff Date: 1-14-95
SNL QA Approval: Neil Simmons Date: 2-2-95
Wes Hoff 1/10/95

PURPOSE: The purpose of this procedure is to establish a method for quick and accurate measurement of the water level in an existing borehole.

RESPONSIBILITY: It is the responsibility of all personnel using the Solinst brand electric sounder to be familiar with this procedure.

SAFETY:

- I. MSDS's for any chemicals used must be available at the work site and read prior to start of work.
- II. Hard hats, safety glasses, and steel-toed boots will be worn when working within 50 feet of any work-over activity. Signs will be posted within 25 feet of a Personal Protective Equipment (PPE) area designating equipment requirements.
- III. Follow guidelines of WP12-1, SNL ES&H Manual and any applicable SOP's during the performance of this procedure.
- IV. Observe all safety issues described in the Job Hazard Analysis.
- V. Personnel working in the field will notify CMR of work location in the event of an emergency. In addition, personnel will be required to maintain a means of communication via phone (or other) with the WIPP site in case of an accident or emergency.

REFERENCES: Job Hazard Analysis

FORMS: Sandia Form 306, Water-Level Data (latest revision)

QA RECORDS: Sandia Form 306, Water-Level Data

PROCEDURE:

I. MEASUREMENT PROCEDURE: (Should be performed with 2 people.)

- A. Insure that the key to the borehole cover is obtained and, if possible, note recent water-level measurements that have been made at the same location.
- B. The Solinst electric sounder works effectively when raised above the level of the borehole (above the top of the casing) either by placing the Solinst meter on the tailgate of a truck or some other method of elevation. Measurements are made from the top of the casing. The casing stick-up is then subtracted from the measured fluid level to obtain the corrected depth to water.
- C. The Solinst meter consists of an electrode (metal probe), a two-wire electric cable marked off in meters, sound and light indicators, a reel around which the tape is wound, and a screw-in locking or braking mechanism.
- D. The Solinst sounding device and light indicates the depth at which water is reached by simultaneously emitting a tone and blinking as the electric circuit is completed (when the probe touches water). The Solinst meter has a test button and volume control knob. When the meter has been turned on, it is possible to test for probe function by pressing the small, black test button located above the red light. The volume knob controls the level of sound emission.
- E. The Solinst meter should be positioned so that it is directly over the center of the borehole to allow the tape to hang freely when lowered. One person is responsible for lowering the cable with the handle and the other person is needed to stabilize the reel and read off the water level from the measured cable.
- F. Turn the volume control knob clockwise and test for probe function by pressing red test button.
- G. Lower the cable into the borehole. If a water level is known, the cable can be lowered rapidly until the recent water level is neared. If the water level is not known it is prudent to lower the cable slowly down the well. When approaching the known water level slow down and inch line forward until beep is heard.

H. When tone is emitted, reel cable upward until beeping stops. Lower cable to measure the exact depth at which the beep occurred. This may be done more than once to insure an accurate reading. If the probe becomes coated with residue in the water, beeping may not cease. In this case, it is necessary to reel in probe, rinse it off with fresh water and proceed again.

I. Record depth-to-water measurement on Sandia Water-Level-Data Form 306.

NOTE: Solinst meters are validated on a regular basis using a steel tape.

J. Carefully rewind tape onto reel keeping tape level and untangled. If necessary, use clean rag to wipe residue from the tape while rewinding.

REVISION SUMMARY

To be completed by procedure's author before final revision is circulated for signatures.

I. Revisions made: _____

II. Personnel effected:

(Check appropriate ones)

MOC Craftsman
Drilling _____
Shop _____
Mechanical _____
Electrical _____
Gage _____
Cable/TC _____
U/G DAS _____
Geotech _____

SNL JOB AREA
DAS General _____
DAS B49 Trailer _____
DAS Sheds _____
DAS Equip. Cal. & Inv. _____
Thermocouple _____
Cables _____
Drilling _____
Gage Installation _____
Gage Cal. & Removal _____
Plugging & Sealing _____
Brine Transport _____
QA _____
General _____
Principal Investigator _____
Bin Leak Tester _____
Permeability Testing X

III. Retraining required:

(Circle One)

Read/Re-read procedure

Practical demonstration

Other (explain)

Signature of
Procedure's Author Vesee Duggate Date 2-2-95